



**TECHNICAL SUPPORT DOCUMENT**

**Air Discharge Permit / Nonroad Engine Permit ADP 23-3593  
ADP / NEP Application CO-1077**

**Issued: July 26, 2023**

**D.H. Griffin Wrecking Company**

**SWCAA ID - 2784**

Prepared By: Wess Safford  
Air Quality Engineer  
Southwest Clean Air Agency

**TABLE OF CONTENTS**

| <u>Section</u>  | <u>Page</u> |
|---|-------------|
| 1. Facility Identification  | 1           |
| 2. Facility Description   | 1           |
| 3. Current Permitting Action  | 1           |
| 4. Process Description  | 1           |
| 5. Equipment/Activity Identification  | 2           |
| 6. Emissions Determination  | 3           |
| 7. Regulations and Emission Standards   | 10          |
| 8. RACT/BACT/BART/LAER/PSD/CAM Determinations   | 11          |
| 9. Ambient Impact Analysis  | 12          |
| 10. Discussion of Approval Conditions   | 12          |
| 11. Start-up and Shutdown Provisions/Alternative Operating Scenarios/Pollution Prevention | 13          |
| 12. Emission Monitoring and Testing   | 14          |
| 13. Facility History  | 14          |
| 14. Public Involvement Opportunity  | 14          |

**ABBREVIATIONS***List of Acronyms*

|        |   |          |   |
|--------|---|----------|---|
| ADP    | Air Discharge Permit  | NOV      | Notice of Violation/  |
| AP-42  | Compilation of Emission Factors, AP-42, 5th Edition, Volume 1, Stationary Point and Area Sources – published by EPA | NSPS     | New Source Performance Standard   |
| ASIL   | Acceptable Source Impact Level  | PSD      | Prevention of Significant Deterioration   |
| CAS#   | Chemical Abstracts Service registry number  | RCW      | Revised Code of Washington  |
| CFR    | Code of Federal Regulations   | SQER     | Small Quantity Emission Rate listed in WAC 173-460  |
| EPA    | U.S. Environmental Protection Agency  | Standard | Standard conditions at a temperature of 68°F (20°C) and a pressure of 29.92 in Hg (760 mm Hg) |
| EU     | Emission Unit   | SWCAA    | Southwest Clean Air Agency  |
| mfr    | Manufacturer  | T-BACT   | Best Available Control Technology for toxic air pollutants                                    |
| NESHAP | National Emission Standards for Hazardous Air Pollutants  | WAC      | Washington Administrative Code  |

*List of Units and Measures*

|                   |                                   |       |                                  |
|-------------------|-----------------------------------|-------|----------------------------------|
| µg/m <sup>3</sup> | Micrograms per cubic meter        | ppm   | Parts per million                |
| acfm              | Actual cubic foot per minute      | ppmv  | Parts per million by volume      |
| bhp               | Brake horsepower                  | ppmvd | Parts per million by volume, dry |
| gpm               | Gallon per minute                 | ppmw  | Parts per million by weight      |
| gr/dscf           | Grain per dry standard cubic foot | psig  | Pounds per square inch, gauge    |
| hp                | Horsepower                        | rpm   | Revolution per minute            |
| hp-hr             | Horsepower-hour                   | scfm  | Standard cubic foot per minute   |
| kW                | Kilowatt                          | tph   | Ton per hour                     |
| MMBtu             | Million British thermal unit      | tpy   | Tons per year                    |

*List of Chemical Symbols, Formulas, and Pollutants*

|                  |   |                   |  |
|------------------|---|-------------------|--|
| CO               | Carbon monoxide   | PM                | Particulate Matter with an aerodynamic diameter 100 µm or less |
| CO <sub>2</sub>  | Carbon dioxide  | PM <sub>10</sub>  | PM with an aerodynamic diameter 10 µm or less                  |
| CO <sub>2e</sub> | Carbon dioxide equivalent   | PM <sub>2.5</sub> | PM with an aerodynamic diameter 2.5 µm or less                 |
| HAP              | Hazardous air pollutant listed pursuant to Section 112 of the Federal Clean Air Act | SO <sub>2</sub>   | Sulfur dioxide   |
| N <sub>2</sub> O | Nitrous oxide   | SO <sub>x</sub>   | Sulfur oxides  |
| NH <sub>3</sub>  | Ammonia   | TAP               | Toxic air pollutant pursuant to Chapter 173-460 WAC            |
| NO <sub>2</sub>  | Nitrogen dioxide  | VOC               | Volatile organic compound                                      |
| NO <sub>x</sub>  | Nitrogen oxides   |                   |  |
| O <sub>2</sub>   | Oxygen  |                   |  |
| O <sub>3</sub>   | Ozone   |                   |  |

Terms not otherwise defined have the meaning assigned to them in the referenced regulations or the dictionary definition, as appropriate.

## 1. FACILITY IDENTIFICATION

Applicant Name: D.H. Griffin Wrecking Company, Inc.  
Applicant Address: 1205 Reams Road, Charlotte, North Carolina 28269

Facility Name: D.H. Griffin Wrecking Company  
Facility Address: 4029 Industrial Way, Longview, Washington 98632  
(Initial Location)

SWCAA Identification: 2784

Contact Person: Mark Green, Division Manager

Primary Process: Aggregate Crushing  
SIC/NAICS Code: 1429 / Quarrying of non-metallic minerals  
212319 / Other crushed and broken stone mining and quarrying

Facility Classification: Natural Minor

## 2. FACILITY DESCRIPTION

D.H. Griffin Wrecking Company (D.H. Griffin) operates a portable aggregate crushing plant based in North Carolina. The crushing plant includes a single trail-mounted unit consisting of an impact crusher, vibratory screen, and associated conveyors. The crushing and screening unit is powered by a dedicated diesel engine. An associated stacker conveyor is also powered by a dedicated diesel engine. The proposed crushing plant will initially be located at 4029 Industrial Way in Longview, Washington to crush reclaim concrete from an ongoing demolition project.

## 3. CURRENT PERMITTING ACTION

This permitting action is in response to Air Discharge Permit application number CO-1077 (ADP Application CO-1077) dated June 22, 2023. D.H. Griffin submitted ADP Application CO-1077 requesting approval of the following equipment:

- Superior 30" x 80' portable radial stacking conveyor with integral diesel engine power unit (Caterpillar C2.2).
- Tesab 8042T tracked stockpiler with integral diesel engine power unit (Caterpillar C2.2).

The current permitting action provides approval for portable material handling equipment as proposed by the applicant. ADP 23-3593 will supersede ADP 23-3582 in its entirety.

## 4. PROCESS DESCRIPTION

- 4.a Rock Crushing (existing). The proposed rock crushing equipment will be used to crush reclaimed concrete from onsite demolition projects. Primary crushing equipment consists of a closed circuit impact plant with 2-deck screen. Raw aggregate will be fed into the crushing unit using front-end loaders. Oversized material is returned to the crusher feed pan. Sized aggregate is transferred via conveyor belt to onsite storage piles. Spray nozzles will be used to control fugitive dust emissions at the entrance of the crusher. Other emission points will be watered as necessary to control fugitive dust emissions. Wet suppression (sprinklers and hose sprays) will be used to control fugitive emissions from associated haul roads and storage piles.

## 5. EQUIPMENT/ACTIVITY IDENTIFICATION

- 5.a Lippmann Impact Crusher (*existing*). This unit is a trailer-mounted impact crusher. This unit is co-mounted with a two-deck aggregate screen. Wet suppression is used to control dust emissions at the inlet of the crusher and as necessary at the finished product delivery belt.

Make / Model: Lippmann / 8400r (s/n 2019-07346)  
 Year Built: 2019  
 Capacity: 260 tph  
 NSPS Applicable: Subpart OOO

- 5.b Lippmann Aggregate Screen (*existing*). This unit is a trailer-mounted 2-deck aggregate screen. This unit is co-mounted with an impact crusher. Wet suppression is used as necessary to control dust emissions at associated material handling points.

Make / Model: Lippmann / 8400r (s/n 2019-07346)  
 Year Built: 2019  
 Capacity: 260 tph  
 NSPS Applicable: Subpart OOO

- 5.c Haul Roads and Storage Piles (*existing*). Vehicle traffic and material handling operations generate fugitive dust emissions. Haul roads may be paved and/or unpaved depending on the location at which the facility is operating. Fugitive emissions from storage piles and haul roads are minimized with the use of low pressure wet suppression.

- 5.d Nonroad Diesel Engine – Lippman Impactor Plant (*existing*). This engine is the power unit for a closed-circuit crushing plant.

Make / Model: Caterpillar / C9.3B  
 Power Rating: 416 bhp  
 Fuel Type: Diesel  
 Fuel Consumption: 20.82 gal/hr  
 Model Year: 2019  
 EPA Certification: Tier 4  
 NSPS/MACT Applicable: No  
 Exhaust: 5" diameter, vertical at 12' above ground level

- 5.e Nonroad Diesel Engine – Stacking Conveyor #1 (*existing*). This engine is the power unit for a portable stacking conveyor.

Make / Model: Kubota / V2403-CR-EF  
 Power Rating: 52 bhp  
 Fuel Type: Diesel  
 Fuel Consumption: 2.64 gal/hr  
 Model Year: 2020  
 EPA Certification: Tier 4  
 NSPS/MACT Applicable: No  
 Exhaust: 2" diameter, horizontal at ~4.5' above ground level

- 5.f Nonroad Diesel Engine – Stacking Conveyor #2 (new). This engine is the power unit for a Superior 30" x 80' portable radial stacking conveyor (600 tph).

Make / Model: Caterpillar / C2.2  
 Power Rating: 66 bhp  
 Fuel Type: Diesel  
 Fuel Consumption: 3.35 gal/hr  
 Model Year: 2020  
 EPA Certification: Tier 4 Interim  
 NSPS/MACT Applicable: No  
 Exhaust: 2" diameter stack, horizontal at ~4' above ground level

- 5.g Nonroad Diesel Engine – Stacking Conveyor #3 (new). This engine is the power unit for a Tesab 8042T tracked stockpiler (600 tph).

Make / Model: Caterpillar / C2.2  
 Power Rating: 66 bhp  
 Fuel Type: Diesel  
 Fuel Consumption: 3.35 gal/hr  
 Model Year: 2020  
 EPA Certification: Tier 4 Interim  
 NSPS/MACT Applicable: No  
 Exhaust: 2" diameter stack, horizontal at ~3' above ground level

- 5.h Equipment/Activity Summary.

| ID No. | Equipment/Activity                            | Control Equipment/Measure  |
|--------|---|--|
| 1      | Rock Crusher (Lippman – Impact)               | High pressure spray system   |
| 2      | Aggregate Screen (Lippman – Two Deck)         | High pressure spray system   |
| 3      | Haul Roads and Storage Piles                  | Wet Suppression  |
| 4      | Nonroad Diesel Engine (Caterpillar – 416 bhp) | EPA Tier Certified Engine,<br>Low sulfur diesel ( $\leq 0.0015\%$ by wt) |
| 5      | Nonroad Diesel Engine (Kubota – 52 bhp)       | EPA Tier Certified Engine,<br>Low sulfur diesel ( $\leq 0.0015\%$ by wt) |
| 6      | Nonroad Diesel Engine (Caterpillar – 66 bhp)  | EPA Tier Certified Engine,<br>Low sulfur diesel ( $\leq 0.0015\%$ by wt) |
| 7      | Nonroad Diesel Engine (Caterpillar – 66 bhp)  | EPA Tier Certified Engine,<br>Low sulfur diesel ( $\leq 0.0015\%$ by wt) |

## 6. EMISSIONS DETERMINATION

Emissions to the ambient atmosphere from operation of the portable aggregate crushing plant proposed in ADP/NEP Application CO-1077 consist of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), volatile organic compounds (VOC), particulate matter (PM), and sulfur dioxide (SO<sub>2</sub>).

Unless otherwise specified by SWCAA, actual emissions must be determined using the specified input parameter listed for each emission unit and the following hierarchy of methodologies:

- (a) Continuous emissions monitoring system (CEMS) data;
  - (b) Source emissions test data (EPA reference method). When source emissions test data conflicts with CEMS data for the time period of a source test, source test data must be used;
  - (c) Source emissions test data (other test method); and
  - (d) Emission factors or methodology provided in this TSD.
- 6.a Rock Crushing and Screening (existing). Potential emissions from aggregate crushing operations are calculated based on a maximum material throughput of 300,000 tpy, a control efficiency of 80% (wet suppression), and applicable emission factors. Except for primary crushing, all emission factors for rock crushing are 'controlled' factors from the 8/04 version of EPA AP-42, Table 11.19.2-2. Emission factors for tertiary crushing have been used as an upper limit for secondary crushing as suggested in the 8/04 version of the table.

Emission factors for primary crushing are derived from the 1/95 version of EPA AP-42, Table 11.19.2-2 which only provided an 'uncontrolled' PM factor for primary crushing. An 'uncontrolled' PM<sub>10</sub> factor was calculated using a PM to PM<sub>10</sub> ratio of 2.1:1 as specified in the 1/95 table footnotes. An 'uncontrolled' PM<sub>2.5</sub> factor was calculated using a PM to PM<sub>2.5</sub> ratio of 12:1 as cited for tertiary crushing in the 8/04 table.

Annual emissions from aggregate crushing operations will be calculated based on actual material throughput using the same methodology.

|                  |                   |          |
|------------------|-------------------|----------|
| Total Emissions: | PM                | 0.64 tpy |
|                  | PM <sub>10</sub>  | 0.24 tpy |
|                  | PM <sub>2.5</sub> | 0.03 tpy |

| Activity           | Throughput<br>(tpy) | Pollutant         | Emission Factor -<br>Controlled (lb/ton) | Turn<br>Points | Emissions<br>(tpy) |
|--------------------|---------------------|-------------------|--|----------------|--------------------|
| Primary crushing   | 300,000             | PM                | 0.00014                                  | 5              | 0.021              |
|                    |                     | PM <sub>10</sub>  | 0.000067                                 |                | 0.010              |
|                    |                     | PM <sub>2.5</sub> | 0.000012                                 |                | 0.002              |
| Secondary crushing | 300,000             | PM                | 0.0012                                   |                | 0.180              |
|                    |                     | PM <sub>10</sub>  | 0.00054                                  |                | 0.081              |
|                    |                     | PM <sub>2.5</sub> | 0.0001                                   |                | 0.015              |
| Tertiary crushing  |                     | PM                | 0.0012                                   |                | 0.000              |
|                    |                     | PM <sub>10</sub>  | 0.00054                                  |                | 0.000              |
|                    |                     | PM <sub>2.5</sub> | 0.0001                                   |                | 0.000              |
| Screening          | 300,000             | PM                | 0.0022                                   |                | 0.330              |
|                    |                     | PM <sub>10</sub>  | 0.00074                                  |                | 0.111              |
|                    |                     | PM <sub>2.5</sub> | 0.00005                                  |                | 0.008              |
| Loading/conveying  | 300,000             | PM                | 0.00014                                  |                | 0.105              |
|                    |                     | PM <sub>10</sub>  | 0.000046                                 |                | 0.035              |
|                    |                     | PM <sub>2.5</sub> | 0.000013                                 |                | 0.010              |

- 6.b Haul Roads (existing). Potential emissions from unpaved haul roads are calculated based on an average truck weight of 33 tons, an average silt content of 4.8%, an average round trip distance of 0.5 miles, and the emission equation from EPA AP-42, Section 13.2.2 (11/06). The use of wet suppression is assumed to provide an overall control efficiency of 80% for fugitive dust emissions. Average truck weight represents an empty truck weight of 26,000 pounds and a 40,000 pounds load of aggregate. The 4.8% silt content is the average silt content listed for sand and gravel plant processing roads in AP-42 Table 13.2.2.1 (11/06).

Annual emissions from haul road use will be calculated based on actual haul road traffic using the same methodology.

$$E = k \left( \frac{s}{12} \right)^a \left( \frac{w}{3} \right)^b$$

lb/vehicle mile travelled (uncontrolled)

Where: E = pounds of pollutant per vehicle mile traveled  
w = average truck weight in tons  
s = road surface silt content (%)  
k, a and b (see table below)

| Constant | PM <sub>2.5</sub> | PM <sub>10</sub> | PM (PM <sub>30</sub> ) |
|----------|-------------------|------------------|------------------------|
| k        | 0.15              | 1.5              | 4.9                    |
| a        | 0.9               | 0.9              | 0.7                    |
| b        | 0.45              | 0.45             | 0.45                   |

|                               |              |            |                        |                        |
|-------------------------------|--------------|------------|------------------------|------------------------|
| Material Conveyed =           | 300,000      | tons       |                        |                        |
| Average Truck Weight =        | 33.000       | tons       |                        |                        |
| Round Trip Distance =         | 0.50         | miles      |                        |                        |
| Average Load =                | 20.00        | tons       |                        |                        |
| Total Miles Traveled =        | 7,500        | miles      |                        |                        |
| Assumed Silt Content =        | 4.8          | %          | (AP-42 Table 13.2.2-1) |                        |
| Assumed Control (wet supp.) = | 80           | %          |                        |                        |
|                               | Uncontrolled | Controlled |                        |                        |
|                               | EF           | EF         | Emissions              |                        |
| Pollutant                     | lb/mile      | lb/mile    | tpy                    | Emission Factor Source |
| PM                            | 7.59         | 1.52       | 5.69                   | AP-42 13.2.2 (11/06)   |
| PM <sub>10</sub>              | 1.93         | 0.39       | 1.45                   | AP-42 13.2.2 (11/06)   |
| PM <sub>2.5</sub>             | 0.30         | 0.06       | 0.22                   | AP-42 13.2.2 (11/06)   |



- 6.c Nonroad Diesel Engine – Lippman Impactor Plant (existing). Emissions from engine operation are calculated based on 2,000 hours of operation, use of ultra-low sulfur diesel (<0.0015% sulfur by weight), and a maximum engine rating of 416 hp. Annual emissions will be calculated from actual hours of operation using the emission factors identified below.

|                                    |                 |                       |                    |                   |                             |           |
|------------------------------------|-----------------|-----------------------|--------------------|-------------------|-----------------------------|-----------|
| Hours of Operation =               | 2,000           | hours                 |                    |                   |                             |           |
| Power Output =                     | 416             | horsepower            |                    |                   |                             |           |
| Fuel Sulfur Content =              | 0.0015          | % by weight           |                    |                   |                             |           |
| Fuel Consumption Rate =            | 20.82           | gal/hr                |                    |                   |                             |           |
| Fuel Heat Content =                | 0.138           | MMBtu/gal (40 CFR 98) |                    |                   |                             |           |
|                                    | EF              | Emissions             |                    |                   |                             |           |
| <u>Pollutant</u>                   | <u>lb/hr</u>    | <u>tpy</u>            | <u>EF Source</u>   |                   |                             |           |
| NO <sub>x</sub>                    | 0.13            | 0.13                  | CARB Certification |                   |                             |           |
| CO                                 | 0.14            | 0.14                  | CARB Certification |                   |                             |           |
| VOC                                | 0.034           | 0.034                 | CARB Certification |                   |                             |           |
| SO <sub>x</sub> as SO <sub>2</sub> | 0.0045          | 0.0045                | Mass Balance       |                   |                             |           |
| PM/PM <sub>10</sub>                | 0.0070          | 0.0070                | CARB Certification |                   |                             |           |
| PM <sub>2.5</sub>                  | 0.0070          | 0.0070                | CARB Certification |                   |                             |           |
|                                    |                 |                       |                    | CO <sub>2</sub> e | CO <sub>2</sub> e           |           |
| <u>Greenhouse Gases</u>            | <u>kg/MMBtu</u> | <u>GWP</u>            | <u>lb/MMBtu</u>    | <u>lb/gallon</u>  | <u>tpy, CO<sub>2</sub>e</u> |           |
| CO <sub>2</sub>                    | 73.96           | 1                     | 163.05             | 22.501            | 468                         | 40 CFR 98 |
| CH <sub>4</sub>                    | 0.003           | 25                    | 0.165              | 0.023             | 0.5                         | 40 CFR 98 |
| N <sub>2</sub> O                   | 0.0006          | 298                   | 0.394              | 0.054             | 1.1                         | 40 CFR 98 |
| Total GHG - CO <sub>2</sub> e      | 73.9636         |                       | 163.61             | 22.58             | 470.1                       |           |

- 6.d Nonroad Diesel Engine – Stacking Conveyor #1 (existing). Emissions from engine operation (Kubota V2403-CR-EF) are calculated based on 2,000 hours of operation, use of ultra-low sulfur diesel (<0.0015% sulfur by weight), and a maximum engine rating of 52 hp. Annual emissions will be calculated from actual hours of operation using the emission factors identified below.

|                                    |                 |                       |                   |                   |                             |           |
|------------------------------------|-----------------|-----------------------|-------------------|-------------------|-----------------------------|-----------|
| Hours of Operation =               | 2,000           | hours                 |                   |                   |                             |           |
| Power Output =                     | 52              | horsepower            |                   |                   |                             |           |
| Fuel Sulfur Content =              | 0.0015          | % by weight           |                   |                   |                             |           |
| Fuel Consumption Rate =            | 2.64            | gal/hr                |                   |                   |                             |           |
| Fuel Heat Content =                | 0.138           | MMBtu/gal (40 CFR 98) |                   |                   |                             |           |
|                                    | EF              | Emissions             |                   |                   |                             |           |
| <u>Pollutant</u>                   | <u>lb/hr</u>    | <u>tpy</u>            | <u>EF Source</u>  |                   |                             |           |
| NO <sub>x</sub>                    | 0.26            | 0.26                  | EPA Certification |                   |                             |           |
| CO                                 | 0.0010          | 0.001                 | EPA Certification |                   |                             |           |
| VOC                                | 0.0010          | 0.001                 | EPA Certification |                   |                             |           |
| SO <sub>x</sub> as SO <sub>2</sub> | 0.00060         | 0.00060               | Mass Balance      |                   |                             |           |
| PM/PM <sub>10</sub>                | 0.0010          | 0.001                 | EPA Certification |                   |                             |           |
| PM <sub>2.5</sub>                  | 0.0010          | 0.001                 | EPA Certification |                   |                             |           |
|                                    |                 |                       |                   | CO <sub>2</sub> e | CO <sub>2</sub> e           |           |
| <u>Greenhouse Gases</u>            | <u>kg/MMBtu</u> | <u>GWP</u>            | <u>lb/MMBtu</u>   | <u>lb/gallon</u>  | <u>tpy, CO<sub>2</sub>e</u> |           |
| CO <sub>2</sub>                    | 73.96           | 1                     | 163.05            | 22.501            | 59                          | 40 CFR 98 |
| CH <sub>4</sub>                    | 0.003           | 25                    | 0.165             | 0.023             | 0.1                         | 40 CFR 98 |
| N <sub>2</sub> O                   | 0.0006          | 298                   | 0.394             | 0.054             | 0.1                         | 40 CFR 98 |
| Total GHG - CO <sub>2</sub> e      | 73.9636         |                       | 163.61            | 22.58             | 59.6                        |           |

- 6.e Nonroad Diesel Engine – Stacking Conveyor #2 (new). Emissions from engine operation (Caterpillar C2.2) are calculated based on 2,000 hours of operation, use of ultra-low sulfur diesel (<0.0015% sulfur by weight), and a maximum engine rating of 66 hp. Annual emissions will be calculated from actual hours of operation using the emission factors identified below.

|                                    |                 |                       |                   |                   |                   |                             |
|------------------------------------|-----------------|-----------------------|-------------------|-------------------|-------------------|-----------------------------|
| Hours of Operation =               | 2,000           | hours                 |                   |                   |                   |                             |
| Power Output =                     | 66              | horsepower            |                   |                   |                   |                             |
| Fuel Sulfur Content =              | 0.0015          | % by weight           |                   |                   |                   |                             |
| Fuel Consumption Rate =            | 3.35            | gal/hr                |                   |                   |                   |                             |
| Fuel Heat Content =                | 0.138           | MMBtu/gal (40 CFR 98) |                   |                   |                   |                             |
|                                    | EF              | Emissions             |                   |                   |                   |                             |
| <u>Pollutant</u>                   | <u>lb/hr</u>    | <u>tpy</u>            | <u>EF Source</u>  |                   |                   |                             |
| NO <sub>x</sub>                    | 0.33            | 0.33                  | EPA Certification |                   |                   |                             |
| CO                                 | 0.0011          | 0.0011                | EPA Certification |                   |                   |                             |
| VOC                                | 0.0011          | 0.0011                | EPA Certification |                   |                   |                             |
| SO <sub>x</sub> as SO <sub>2</sub> | 0.00072         | 0.00072               | Mass Balance      |                   |                   |                             |
| PM/PM <sub>10</sub>                | 0.0011          | 0.0011                | EPA Certification |                   |                   |                             |
| PM <sub>2.5</sub>                  | 0.0011          | 0.0011                | EPA Certification |                   |                   |                             |
|                                    |                 |                       |                   | CO <sub>2</sub> e | CO <sub>2</sub> e |                             |
| <u>Greenhouse Gases</u>            | <u>kg/MMBtu</u> | <u>GWP</u>            |                   | <u>lb/MMBtu</u>   | <u>lb/gallon</u>  | <u>tpy, CO<sub>2</sub>e</u> |
| CO <sub>2</sub>                    | 73.96           | 1                     |                   | 163.05            | 22.501            | 75 40 CFR 98                |
| CH <sub>4</sub>                    | 0.003           | 25                    |                   | 0.165             | 0.023             | 0.1 40 CFR 98               |
| N <sub>2</sub> O                   | 0.0006          | 298                   |                   | 0.394             | 0.054             | 0.2 40 CFR 98               |
| Total GHG - CO <sub>2</sub> e      | 73.9636         |                       |                   | 163.61            | 22.58             | 75.6                        |

- 6.f Nonroad Diesel Engine – Stacking Conveyor #3 (new). Emissions from engine operation (Caterpillar C2.2) are calculated based on 2,000 hours of operation, use of ultra-low sulfur diesel (<0.0015% sulfur by weight), and a maximum engine rating of 66 hp. Annual emissions will be calculated from actual hours of operation using the emission factors identified below.

|                                    |                 |  |
|------------------------------------|-----------------|--|
| Hours of Operation =               | 2,000           | hours  |
| Power Output =                     | 66              | horsepower   |
| Fuel Sulfur Content =              | 0.0015          | % by weight  |
| Fuel Consumption Rate =            | 3.35            | gal/hr   |
| Fuel Heat Content =                | 0.138           | MMBtu/gal (40 CFR 98)  |
|                                    |                 |  |
|                                    | EF              | Emissions  |
| <u>Pollutant</u>                   | <u>lb/hr</u>    | <u>tpy</u> <u>EF Source</u>  |
| NO <sub>x</sub>                    | 0.33            | 0.33 EPA Certification   |
| CO                                 | 0.0011          | 0.0011 EPA Certification   |
| VOC                                | 0.0011          | 0.0011 EPA Certification   |
| SO <sub>x</sub> as SO <sub>2</sub> | 0.00072         | 0.00072 Mass Balance   |
| PM/PM <sub>10</sub>                | 0.0011          | 0.0011 EPA Certification   |
| PM <sub>2.5</sub>                  | 0.0011          | 0.0011 EPA Certification   |
|                                    |                 |  |
| <u>Greenhouse Gases</u>            | <u>kg/MMBtu</u> | <u>GWP</u> <u>CO<sub>2</sub>e</u> <u>CO<sub>2</sub>e</u> <u>tpy, CO<sub>2</sub>e</u> |
| CO <sub>2</sub>                    | 73.96           | 1 163.05 22.501 75 40 CFR 98   |
| CH <sub>4</sub>                    | 0.003           | 25 0.165 0.023 0.1 40 CFR 98   |
| N <sub>2</sub> O                   | 0.0006          | 298 0.394 0.054 0.2 40 CFR 98  |
| Total GHG - CO <sub>2</sub> e      | 73.9636         | 163.61 22.58 75.6  |

- 6.g Emissions Summary/Facility-wide Potential to Emit. Facility-wide potential to emit as calculated in the sections above is summarized below.

|                   |                                  |                               |
|-------------------|----------------------------------|-------------------------------|
| <u>Pollutant</u>  | <u>Potential Emissions (tpy)</u> | <u>Project Increase (tpy)</u> |
| NO <sub>x</sub>   | 1.06                             | 0.66                          |
| CO                | 0.14                             | 0.002                         |
| VOC               | 0.037                            | 0.002                         |
| SO <sub>2</sub>   | 0.0065                           | 0.001                         |
| Lead              | 0.00                             | 0.00                          |
| PM                | 6.34                             | 0.002                         |
| PM <sub>10</sub>  | 1.70                             | 0.002                         |
| PM <sub>2.5</sub> | 0.26                             | 0.002                         |
| TAP               | 0.00                             | 0.00                          |
| HAP               | 0.00                             | 0.00                          |
| CO <sub>2</sub> e | 681                              | 151                           |

## 7. REGULATIONS AND EMISSION STANDARDS

Regulations that have been used to evaluate the acceptability of the proposed facility and establish emission limits and control requirements include, but are not limited to, the regulations, codes, or requirements listed below.

- 7.a 40 CFR 60.670 et seq. (Subpart OOO) "Standards of Performance for Nonmetallic Mineral Processing Plants" establishes opacity and particulate matter emission limits for stationary (fixed) plants with capacities greater than 25 tons per hour and portable plants greater than 150 tons per hour that were constructed, reconstructed or modified after August 31, 1983. More stringent requirements apply to affected facilities constructed, reconstructed or modified on or after April 22, 2008. This subpart is applicable to the rock crushing equipment proposed in ADP Application CO-1072.
- 7.b 40 CFR 1039 "Control of Emissions from New and In-use Nonroad Compression Ignition Engines" establishes standards for new non-road engines beginning with the 2008 model year for certain categories. The applicable year varies by engine category. In accordance with the relevant subpart, nonroad engines must meet the appropriate EPA Tier certification standards based on engine size and year of manufacture. Emission standards formerly codified in 40 CFR 89 have been moved to 40 CFR 1039 Appendix I. This subpart is applicable to the nonroad engines at this facility.

The definition of "nonroad engine" for this subpart is found in 40 CFR 1068.30 and includes any internal combustion engine that (1)(iii) "That, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another..." "An internal combustion engine is not a nonroad engine if:... (iii) the engine otherwise included in Paragraph 1(iii) of this definition remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source...A location is any single site at a building, structure, facility or installation."

States are precluded from requiring retrofitting of nonroad engines except that states are permitted to adopt and enforce any such retrofitting requirements identical to California requirements which have been authorized by EPA under section 209 of the Clean Air Act. States may enforce limitations on hours of usage, daily mass emission limits, and sulfur limits on fuel as necessary.

- 7.c Revised Code of Washington (RCW) 70A.15.2040 empowers any activated air pollution control authority to prepare and develop a comprehensive plan or plans for the prevention, abatement and control of air pollution within its jurisdiction. An air pollution control authority may issue such orders as may be necessary to effectuate the purposes of the Washington Clean Air Act and enforce the same by all appropriate administrative and judicial proceedings subject to the rights of appeal as provided in Chapter 62, Laws of 1970 ex. sess.
- 7.d RCW 70A.15.2210 provides for the inclusion of conditions of operation as are reasonably necessary to assure the maintenance of compliance with the applicable ordinances, resolutions, rules and regulations when issuing an Air Discharge Permit for installation and establishment of an air contaminant source.
- 7.e WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" requires Best Available Control Technology for toxic air pollutants (T-BACT), identification and quantification of emissions of toxic air pollutants and demonstration of protection of human health and safety.
- 7.f WAC 173-476 "Ambient Air Quality Standards" establishes ambient air quality standards for PM<sub>10</sub>, PM<sub>2.5</sub>, lead, sulfur dioxide, nitrogen dioxide, ozone, and carbon monoxide in the ambient air, which shall not be exceeded.
- 7.g SWCAA 400-040 "General Standards for Maximum Emissions" requires all new and existing sources and emission units to meet certain performance standards with respect to Reasonably Available Control Technology (RACT), visible emissions, fallout, fugitive emissions, odors, emissions detrimental to persons or property, sulfur dioxide, concealment and masking, and fugitive dust.

- 7.h SWCAA 400-045 "Permit Applications for Nonroad Engines" requires, with a few exceptions, submittal of a permit application for installation of nonroad engines as defined in 40 CFR 1068.30. This regulation is applicable to the nonroad engines proposed for use by the permittee.
- 7.i SWCAA 400-046 "Application Review Process for Nonroad Engines" requires that a nonroad engine permit be issued by the agency prior to the installation, replacement or alteration of any nonroad engine subject to the requirements of SWCAA 400-045. Each application must demonstrate that the installation will not cause an exceedance of any national or state ambient air quality standard.
- 7.j SWCAA 400-050 "Emission Standards for Combustion and Incineration Units" requires that all provisions of SWCAA 400-040 be met and that no person shall cause or permit the emission of particulate matter from any combustion or incineration unit in excess of 0.23 grams per dry cubic meter (0.1 grains per dry standard cubic foot) of exhaust gas at standard conditions.
- 7.k SWCAA 400-060 "Emission Standards for General Process Units" prohibits particulate matter emissions from all new and existing process units in excess of 0.1 grains per dry standard cubic foot of exhaust gas.
- 7.l SWCAA 400-109 "Air Discharge Permit Applications" requires that an Air Discharge Permit application be submitted for all new installations, modifications, changes, or alterations to process and emission control equipment consistent with the definition of "new source". Sources wishing to modify existing permit terms may submit an Air Discharge Permit application to request such changes. An Air Discharge Permit must be issued, or written confirmation of exempt status must be received, before beginning any actual construction, or implementing any other modification, change, or alteration of existing equipment, processes, or permits.
- 7.m SWCAA 400-110 "New Source Review" requires that SWCAA issue an Air Discharge Permit in response to an Air Discharge Permit application prior to establishment of the new source, emission unit, or modification.
- 7.n SWCAA 400-113 "Requirements for New Sources in Attainment or Nonclassifiable Areas" requires that no approval to construct or alter an air contaminant source shall be granted unless it is evidenced that:
- (1) The equipment or technology is designed and will be installed to operate without causing a violation of the applicable emission standards;
  - (2) Best Available Control Technology will be employed for all air contaminants to be emitted by the proposed equipment;
  - (3) The proposed equipment will not cause any ambient air quality standard to be exceeded; and
  - (4) If the proposed equipment or facility will emit any toxic air pollutant regulated under WAC 173-460, the proposed equipment and control measures will meet all the requirements of that Chapter.

## **8. RACT/BACT/BART/LAER/PSD/CAM DETERMINATIONS**

The proposed equipment and control systems incorporate Best Available Control Technology (BACT) for the types and amounts of air contaminants emitted by the processes as described below:

### New BACT Determinations

- 8.a Nonroad Engine Tier Certification. The nonroad engines proposed in this permitting action comply with applicable EPA certification requirements, but are not subject to BACT.

### Previous BACT Determinations

- 8.b BACT Determination – Aggregate Crushing and Screening (ADP 23-3582). The use of high pressure wet suppression systems, including spray or fog nozzles operating at a minimum pressure of 80 psig, has been determined to meet the requirements of BACT for the proposed crushing and screening equipment. Because there are other wet suppression systems (e.g. sonic fogging systems) that utilize a lower water pressure but provide equivalent or superior levels of emission control, the permit will allow for wet suppression systems reviewed and approved by SWCAA that provide equivalent or superior control of particulate matter emissions.
- 8.c BACT Determination – Fugitive Dust (ADP 23-3582). The use of wet suppression has been determined to meet the requirements of BACT for fugitive dust emissions from storage piles, material transfer points, and haul roads at this facility.

### Other Determinations

- 8.d Prevention of Significant Deterioration (PSD) Applicability Determination. The potential to emit of this facility is less than applicable PSD applicability thresholds. Likewise, this permitting action will not result in a potential increase in emissions equal to or greater than the PSD thresholds. Therefore, PSD review is not applicable to this action.
- 8.e Compliance Assurance Monitoring (CAM) Applicability Determination. CAM is not applicable to any emission unit at this facility because it is not a major source and is not required to obtain a Part 70 permit.

## **9. AMBIENT IMPACT ANALYSIS**

- 9.a Toxic Air Pollutant Review. This facility does not emit quantifiable amounts of TAPs. Toxic air pollutant impacts are presumed to be below regulatory significance.

### **Conclusions**

- 9.b Operation of portable material handling equipment, as proposed in ADP Application CO-1077, will not cause the ambient air quality requirements of Title 40 Code of Federal Regulations (CFR) Part 50 "National Primary and Secondary Ambient Air Quality Standards" to be violated.
- 9.c Operation of portable material handling equipment, as proposed in ADP Application CO-1077, will not cause the requirements of WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" or WAC 173-476 "Ambient Air Quality Standards" to be violated.
- 9.d Operation of portable material handling equipment, as proposed in ADP Application CO-1077, will not cause a violation of emission standards for sources as established under SWCAA General Regulations Sections 400-040 "General Standards for Maximum Emissions," 400-050 "Emission Standards for Combustion and Incineration Units," and 400-060 "Emission Standards for General Process Units."

## **10. DISCUSSION OF APPROVAL CONDITIONS**

SWCAA has made a determination to issue ADP 23-3593 in response to ADP Application CO-1077. ADP 23-3593 contains approval requirements deemed necessary to assure compliance with applicable regulations and emission standards as discussed below.

- 10.a Supersession of Previous Permits. ADP 23-3593 supersedes ADP 23-3582 in its entirety.

- 10.b General Basis. Permit requirements for equipment affected by this permitting action incorporate the operating schemes proposed by the applicant in ADP Application CO-1077. Permit requirements established by this action are intended to implement BACT, minimize emissions, and assure compliance with applicable requirements on a continuous basis. Emission limits for approved equipment are based on the maximum potential emissions calculated in Section 6 of this Technical Support Document.
- 10.c Monitoring and Recordkeeping Requirements. ADP 23-3593 establishes monitoring and recordkeeping requirements sufficient to document compliance with applicable emission limits, ensure proper operation of approved equipment and provide for compliance with generally applicable requirements. Specific monitoring requirements are established for hours of engine operation, haul road usage, and material throughput.
- 10.d Reporting Requirements. ADP 23-3593 establishes general reporting requirements for annual air emissions, upset conditions and excess emissions. Specific reporting requirements are established for hours of engine operation, haul road usage, and material throughput. Reports are to be submitted on an annual basis.
- 10.e Rock Crushing Equipment. Permit requirements for the proposed rock crushing equipment are consistent with the operating scheme and material data submitted by the applicant. Visible emission limits have been established consistent with proper operation of the proposed equipment and wet suppression systems. High pressure spray systems ( $\geq 80$  psig) have been determined to be a minimum BACT requirement for individual rock crushers.
- 10.f Nonroad Diesel Engines. Potential air emissions are estimated based on 2,000 hr/yr of service. Visible emissions from nonroad engines are limited to 5% opacity. Visible emissions should not exceed this level if the engines are operating properly. For the nonroad engines, SWCAA uses this as a surrogate indicator that the engines are in good repair (rather than a tailpipe emission standard otherwise precluded by 40 CFR 1074). For the nonroad engines, this restriction is appropriate because if the engines are not maintained in good repair, emissions are likely to greatly exceed the expected emission level and could cause an exceedance of a state or federal ambient air quality standard.

The nonroad engines are allowed to fire on "#2 diesel or better". The "or better" term includes road-grade diesel fuel with a lower sulfur content, biodiesel, and mixtures of biodiesel and road-grade diesel that meet the definition of "diesel" and contain no more than 0.0015% sulfur by weight.

## 11. START-UP AND SHUTDOWN/ALTERNATIVE OPERATING SCENARIOS/POLLUTION PREVENTION

- 11.a Start-up and Shutdown Provisions. Pursuant to SWCAA 400-081 "Start-up and Shutdown", technology based emission standards and control technology determinations shall take into consideration the physical and operational ability of a source to comply with the applicable standards during start-up or shutdown. Where it is determined that a source is not capable of achieving continuous compliance with an emission standard during start-up or shutdown, SWCAA shall include appropriate emission limitations, operating parameters, or other criteria to regulate performance of the source during start-up or shutdown.

Diesel Engines. Diesel engines may exhibit higher than normal opacity during startup. Accordingly, the visual emissions limit for the diesel engine power units are not applicable during the startup period defined in the permit. General opacity standards continue to apply.

- 11.b Alternate Operating Scenarios. SWCAA conducted a review of alternate operating scenarios applicable to equipment affected by this permitting action. The permittee did not propose or identify any applicable alternate operating scenarios. Therefore, none were included in the permit requirements.



- 11.c Pollution Prevention Measures. SWCAA conducted a review of possible pollution prevention measures for the facility. No pollution prevention measures were identified by either the permittee or SWCAA separate or in addition to those measures required under BACT considerations. Therefore, none were included in the permit requirements.

## 12. EMISSION MONITORING AND TESTING

- 12.a Emission Testing Requirements – Rock Crushing Equipment. Affected rock crushers and associated screening equipment and belt conveyors are required to perform one-time opacity observations as required by 40 CFR 60 Subpart OOO. All of the crushing and screening equipment addressed by this permitting action is subject to the initial testing requirements of 40 CFR 60 Subpart OOO.

## 13. FACILITY HISTORY

- 13.a Previous Permitting Actions. SWCAA has previously issued the following Permits for this facility:

| <u>Permit<br/>Number</u> | <u>Application<br/>Number</u> | <u>Date</u> | <u>Purpose</u>   |
|--------------------------|-------------------------------|-------------|--|
| 23-3582                  | CO-1072                       | 5/18/2023   | Operation of a portable impact crusher and stacking conveyor. Each unit is powered by a nonroad diesel engine. |

- 13.b Compliance History. A search of source records on file at SWCAA did not identify any previous or outstanding compliance issues during the past five (5) years.

## 14. PUBLIC INVOLVEMENT OPPORTUNITY

- 14.a Public Notice for ADP Application CO-1077. Public notice for ADP Application CO-1077 was published on the SWCAA internet website for a minimum of (15) days beginning on June 23, 2023.
- 14.b Public/Applicant Comment for ADP Application CO-1077. SWCAA did not receive specific comments, a comment period request or any other inquiry from the public regarding this ADP application. Therefore no public comment period was provided for this permitting action.
- 14.c State Environmental Policy Act. Cowlitz County issued a Determination of Nonsignificance (Permit #0002472-002) for demolition of deteriorated and unusable structures at this facility on December 21, 2021.